

Application No.10/686,850
Amendment dated June 27, 2006
Reply to Office Action of February 27, 2006

AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings include new Figures 2-6. These sheets supplement the original sheet including Figure 1.

Attachment: New Sheets (Figures 2-6)

THE OFFICE ACTION

In the Office Action issued February 27, 2006, the Examiner objected to the drawings as not showing every feature of the invention specified in the claims. The Examiner rejected claims 1-5, 8-11, 16, 18, 19, 25, 28-41, 46 and 49 under 35 U.S.C. §102(b) as being anticipated by WO 00/70917 to Wu et al. ("Wu"). The Examiner also rejected claims 6, 7, and 48 under 35 U.S.C. §103(a) as being obvious over Wu in view of U.S. Patent No. 6,469,435 to Seibold et al. ("Seibold"). The Examiner further rejected claims 12-14 under §103(a) as being obvious over Wu in view of U.S. Patent Publication No. 2002/0122895 to Cheong et al. ("Cheong"). The Examiner also rejected claims 20-23 as being obvious over Wu in view of U.S. Patent No. 5,537,000 to Alivisatos et al. ("Alivisatos"). In addition, the Examiner rejected claims 17 and 24 as being unpatentable over Wu in view of WO 99/16847 to Burns et al. ("Burns"). Claims 26 and 44 were rejected as being obvious over Wu. Claim 27 was rejected as being obvious over Wu in view of U.S. Patent No. 5,909,081 to Eida et al. ("Eida"). Claims 52 and 53 were rejected as being obvious over Wu in view of U.S. Patent No. 6,608,439 to Sokolik et al. ("Sokolik").

REMARKS / ARGUMENTS

Applicants respectfully request withdrawal of the rejection in light of the above amendments and the following comments.

A. The Drawings Objections

Figures 2-6 and the associated description in the specification have been added to address the Examiner's objections. Claims 52 and 53 have been amended to more clearly describe two phosphor layers, which are already defined in the specification and Figure 1 by 34 and 38. Withdrawal of these objections is requested.

B. The §102 Rejection

The Examiner rejected claims 1-5, 8-11, 16, 18, 19, 25, 28-41, 46 and 49 under 35 U.S.C. §102(b) as being anticipated by Wu. Applicants respectfully traverse.

The Examiner is rejecting certain claims of the present application in view of the Wu reference, which is an earlier commonly assigned application. The Examiner appears to be basing this rejection on a misunderstanding of the respective technologies. In Wu, adjacent layers of phosphor materials are provided, each layer representing a different color. This is perhaps most clearly seen in figure 5. These phosphor layers are patterned, each layer providing different colors of light. This is described in detail in columns 18-19 of Wu. Above the patterned phosphor layers are provided a second dielectric layer 23 and a patterned transparent conductor 24 to define the column electrodes. Wu teaches the use of ZnS:Mn, SrS:Ce phosphors in conjunction with optical filters (25a, 25b, and 25c) to produce the specific colors. The filters that are used are for red, green and blue light. The filters are suitable polymer films.

The Examiner is incorrect in stating that Wu discloses sub-pixels (i.e. 30a, 30b, 30c) comprising a SrS blue light emitting phosphor AND at least one photoluminescent phosphor associated with the sub-pixel. That is, as can be clearly seen in Fig. 6, only a single phosphor material is present in each sub-pixel. The process is described in Wu in columns 18 and 19. First, a first phosphor is deposited to form one or more of the red, green or blue sub-pixel elements (preferably blue or blue and green) (see col. 18, lines 54-64). A photoresist is then applied followed by exposure through a photomask to expose the blue or the blue and green sub-pixels. Acid etching is then used to remove the first phosphor in the region of the other colored sub-pixels (red or red and green) (see col. 19, lines 15-18 and 36-38). Thus, at this point, there is no more first phosphor in these other colored sub-pixels. Then, a second or a second and third phosphor is deposited over the structure for the red or red and green sub-pixels (col. 19, lines 41-43). Finally, the second or second and third phosphor is removed from the regions above the first phosphor (col. 19, lines 56-58).

Thus, there is only a single phosphor composition in each sub-pixel. The blue phosphor composition is not present in the red or green sub-pixels after the lift-off process described.

In contrast, in present claim 1, we have a pixel sub-structure wherein each sub-pixel structure comprises a blue light emitting phosphor layer and a second

photoluminescent phosphor layer. That is, associated with each blue-light emitting sub-pixel is a color conversion layer which can be a photoluminescent phosphor layer. So the blue light from the phosphor is absorbed by the photoluminescent phosphor layer to produce a different color light (other than blue).

In Wu the different colors of light is provided by the different patterned phosphor layers. There is no color conversion of blue emission by either of the red or green phosphors and the filters don't change the color provided by the different etched patterned phosphor layers.

Based on this, we believe that independent claims 1 and 31, and all claims dependent therefrom, are novel from the cited references. Withdrawal of this rejection is requested.

C. Claim Rejections Under U.S.C. §103

The Examiner rejected claims 6, 7, and 48 under §103(a) as being obvious over Wu in view of Seibold. The Examiner cited Seibold as teaching a reflecting layer associated with the phosphor layer. Even assuming this to be true and the appropriateness of combining the two references, neither Wu nor Seibold suggests the color conversion of a blue phosphor sub-pixel into a different color using a photoluminescent phosphor layer. Thus the further teaching of a reflective layer does not render the claims obvious.

As for the combination of Wu and Cheong, again neither teaches nor suggests the color conversion of a blue phosphor sub-pixel into a different color using a photoluminescent phosphor layer. Thus the further teaching of a barium thioaluminate by Cheong does not render the claims obvious.

Similarly, the teachings of Alivisatos of a inorganic semiconductor nanocrystal does not provide in combination with Wu, the subject matter of claims 20-23 which depends back to claim 1.

Similar arguments are made with respect to Burns, Eida and Sokolik as the Examiner seems to find one claimed feature in these documents which is not taught or suggested with the claimed sub-pixel sub structure. None of these references, when combined with Wu teaches or suggests the subject matter of claim 1 or any claim dependent therefrom.

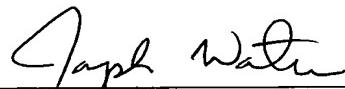
CONCLUSION

Applicants respectfully request reconsideration of the application in light of the above comments and amendments. Applicants respectfully submit that all pending claims recite patentable subject matter. If there are any issues remaining, the Examiner is encouraged to contact the undersigned in an attempt to resolve any issues. If any fee or extension is due in conjunction with the filing of this amendment, Application authorizes deduction of that fee from deposit account 06-0308.

Respectfully submitted,

FAY, SHARPE, FAGAN,
MINNICH & McKEE, LLP

June 27, 2006
Date



Joseph E. Waters, Reg. No. 50,427
1100 Superior Avenue
Seventh Floor
Cleveland, Ohio 44114-2579
(216) 861-5582

Attachment: New Sheets
(Figs. 2-6)

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